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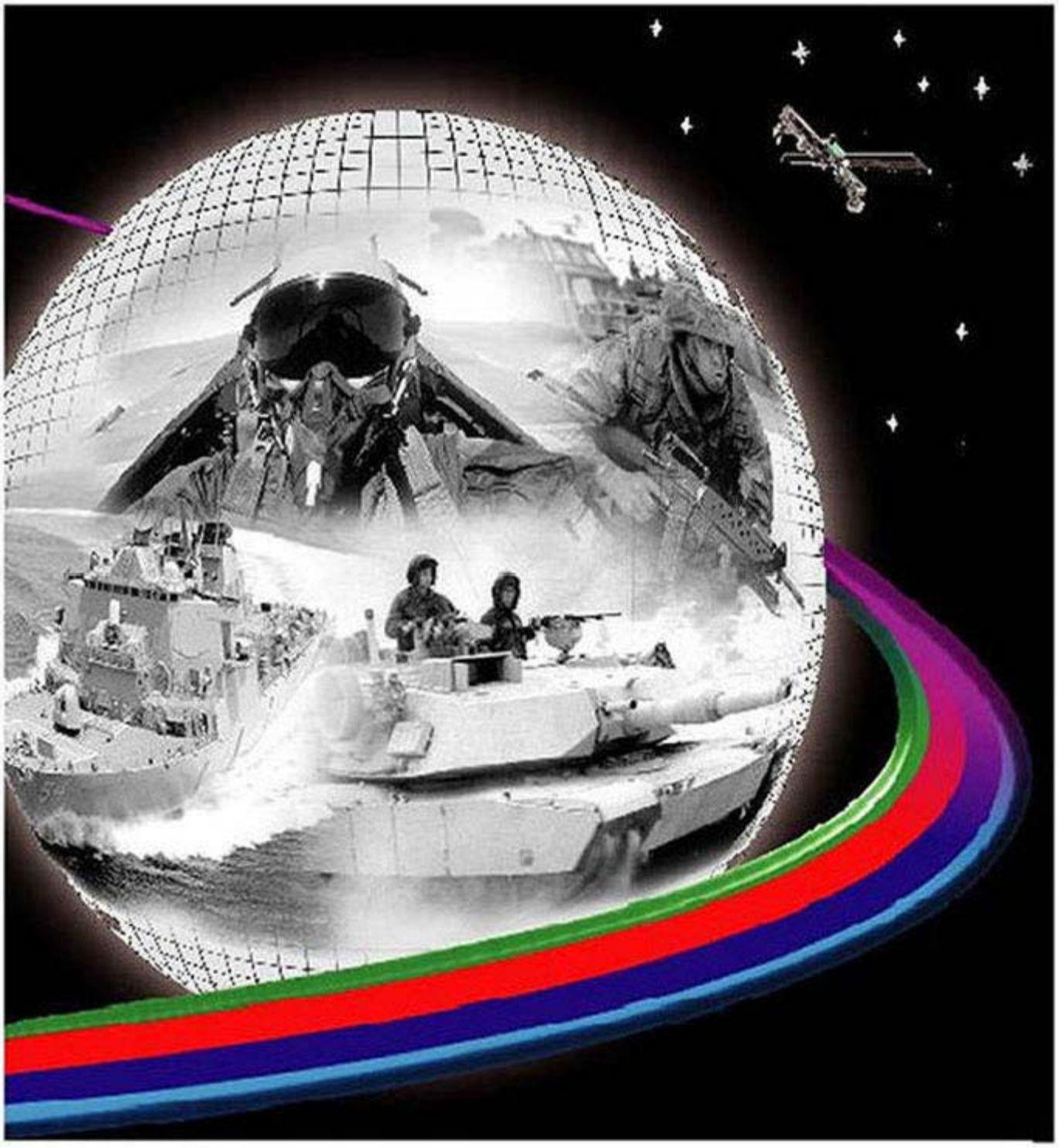

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From the Staff

The important lessons learned for all personnel to know are in the field with you, not with us. The JCLL has the mission and the means to share those lessons with the rest of the joint community. If you or your unit have a "lesson" that could help others do it right the first time, then send it to us. Don't wait until you have a polished article. The JCLL can take care of the editing, format, and layout. We want the raw material that can be packaged and then shared with everyone. Please take the time to put your good ideas on paper and get them to the JCLL. We will acknowledge receipt and then work with you to put your material in a publishable form with **you as the author**.

We want your e-mail address, please send your command e-mail address to us at jcll@jwfc.jfcom.mil. Our future plans call for electronic dissemination of various material.

REMEMBER!!!

TIMELY SUBMISSION OF INTERIM REPORTS, AFTER-ACTION REPORTS, AND LESSONS LEARNED RESULTS IN MORE TIMELY, QUALITY PRODUCTS AND ANALYSIS FROM THE JCLL STAFF.

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Message from the Commander

MG William S. Wallace, USA
Commander, JFCOM JWFC

The Joint Warfighting Center and Joint Staff J7 cosponsored the first Worldwide Joint Lessons Learned (WWJLL) Conference in November at the JWFC, Suffolk, VA. The participants identified many important issues and challenges during the open forums that were held. In order to best provide this information to you, the Joint Community, the JCLL will be publishing a special Bulletin in January 2001 with articles specifically related to the conference. Be sure to look for it and use it to prepare for the Spring WWJLL Conference.

In this edition of the Bulletin, we have begun a new feature titled "***Feedback From the Field***" which will include letters to the editor or articles that do not fit into the normal Bulletin flow. The first letter provides insight on Task Force FALCON in Kosovo from someone who participated in the mission. The second item deals with steps being taken within USTRANSCOM to improve their lessons learned program.

The next two articles are summaries of **GLOBAL ENGAGEMENT** (GE) exercises. **GE 98** ***"Evolving the Expeditionary Aerospace Force"*** provides insights captured during the exercise and the conclusions drawn. In the **GE IV** (1999) summary the reader can track some of the insights gained in GE 98 and see them incorporated in the GE IV exercise.

"Lessons From Combined Rules of Engagement" is reprinted here from the October 1999 edition of Proceedings magazine. It discusses challenges and lessons learned associated with ROE in multinational joint operations. There are also recommendations for improving the planning and execution of these operations.

The next article, ***"Air Operations Must be Joint"*** originally appeared in the Spring 95 Airpower Journal and was selected as an Ira C. Eaker award winner. In the article, the author discusses the need for joint doctrine and the Joint Force Air Component Commander (JFACC) system in the employment of joint air operations. A list of JFACC lessons learned from the current Lessons Learned database is provided for further study, if desired.

Our last article discusses ***"Risk Management for Joint-Level Exercises"*** and provides lessons during BRIGHT STAR 99/00. Many safety lessons are provided for planning in the different exercises phases.

WILLIAM S. WALLACE
Major General, US Army
Commander, JFCOM JWFC

JCLL Update

Mr. Mike Barker
JCLL Director

Since the last bulletin, our primary focus has been the World-wide Joint Lessons Learned Conference (WWJLLC). The idea of a WWJLLC evolved, in part, from the World-Wide Joint Training and Scheduling Conferences the Joint Staff J7 and JWFC host. We (the Joint Staff J7 and JCLL) believed there was a need to hold a conference for the "lessons learned" community. In May of this year, Joint Staff J7 Joint Exercise and Analysis Division (JEAD) and JCLL put together the concept. One month ago, the 1st World-Wide Joint Lesson Learned Conference was held. The theme of this conference was "Where are We Today" and "Mapping the Way Ahead". The "we" refers to the lessons learned community. Based on comments from critiques and face-to-face discussions, the success of the conference exceeded our own expectations. Approximately 90 people pre-registered for the conference. 70 actually attended. We received overwhelming support for additional conferences to include participation by the NATO Permanent Maritime Analysis Team (PAT), the Permanent Joint Headquarters (PJHQ) with the UK, and the American, British, Canadian, & Australian Armies Standardization Program (ABCA). In addition to a regular conference we will also be hosting a Configuration Management Board-like meeting the end of January. The wrap-up message for the conference should be on the street by the time you receive this bulletin. For those of you who were unable to attend, you can go to the JCLL web site at ***http://www.jwfc.jfcom.mil/dodnato/jcll*** to look at or download all the briefs. Also, in January look for a special issue of the bulletin dedicated exclusively to the World-Wide Joint Lessons Learned Conference (see below).

Even though our focus was on the conference, this did not stop JCLL from performing our regular duties, particularly in exercise support. We had teams out supporting Internal Look (CENTCOM) and Trailblazer (EUCOM) with our research packages and JAAR development. In addition to this "standard" support the JCLL provided to the CINCs, we also provided research assistance to a number of outside agencies such as the Strategic Studies program in PACOM and the GAO. Upcoming JCLL support will focus on Agile Lion (EUCOM), Fuertes Defensas (SOUTHCOM) and Lucky Sentinel (CENTCOM).

That wraps up this edition. Be looking for the announcement message after the holidays for the next World-Wide Joint Lessons Learned Conference, which will take place in the April/May timeframe of next year. Speaking of holidays, be SAFE out there. I'll see some of you in January at the Joint Lessons Learned Program Configuration Management Board meeting.

The Joint Center for Lessons Learned will be publishing a Special Issue of the ***JCLL Bulletin*** in January 2001. This Special Issue will provide feedback articles on the results of the first Worldwide Joint Lessons Learned Conference, held at the JWFC from 1-2 November 2000. Many challenges were identified and much discussion was generated on how to best integrate the technology of today into the collection, analysis, and distribution of lessons learned to the Joint Community. Copies of this Special Issue will be mailed through the normal publishing channels to all headquarters and agencies, for both information sharing and to allow preparation for the second conference scheduled in the Spring 2001 timeframe.

Contents

FEEDBACK FROM THE FIELD

Below are the first two articles in a new section of the Bulletin entitled "Feedback From The Field". Our goal in this section is to include articles and comments that we receive from individuals in the Joint Community, similar to a "Letters to the Editor" page. We will include the "Feedback from the Field" section whenever there are articles that do not belong in another section, articles that cannot stand alone, or articles where the author desires to remain anonymous.

Comments on Task Force FALCON in Kosovo:

This is in reference to the article ["Positively Focused and Fully Engaged" Lessons From Task Force Falcon] in the JCLL Bulletin, vol. II, Issue III. I just served a tour in Pristina working with UNMIK. I read your lessons learned and wanted to give you the proper name for UNMIK. It is the UN interim administration Mission In Kosovo. I attached the UNMIK homepage [http://www.un.org/peace/kosovo/pages/kosovo1.htm]. It was a good article and captured the situation well for MNBE [Multinational Brigade (East)]. I have an additional comment to add to the next to the last paragraph, bullet 5 of the article [Distractions from unofficial control groups, such as the Kosovo Protection Corps or the Serb Protection Police, must be minimized].

Personally, I think one of the big mistakes we made was the creation of the KPC, Kosovo Protection Corps. In my opinion, we simply gave the KLA (UÇK, pronounced OO-Chee-Caw, Albanian for KLA) a legitimate cover organization for covert operations. We organized them, gave them titles, uniforms, command and control capabilities, weapons for some, a patch that looks like the UÇK patch, and, on top of it all, a regular salary. They are intended to be a humanitarian service organization but few of these organizations (NGOs and IOs) have a General as the lead. I did not see much production out of them initially either. The good guys are somewhat to blame on this one too. Those negotiating with them gave them the impression the KPC was going to be the Kosovo version of the National Guard for Ethnic Albanians. I know this because I worked with them at their Headquarters in Pristina. Most are sincere and hard working but there are a few who have serious influence over the majority to maintain and execute the original UÇK agenda.

This is also a politically charged issue as you might guess. A US representative was the one who originated the KPC idea. In my opinion, we probably should not have done this. There are other ways to provide work for former combatants and distance them from their former vocation of "freedom fighter." The last thing you should do for a former combatant like this is give him a uniform, a patch that looks like their former one, and then ask them to pick up a shovel like a commoner. These guys (the ones with the influence) view themselves as war heroes and menial labor is below them for the most part. Recent developments with the UÇPMB in MNBE and Southern Serbia may provide even more insight on how to demilitarize former combatants. **Bottom line**: we are going to be there for a long time because the sort of problems mentioned in your article do not just go away in a year or two.

[Name withheld at the request of the author]

Comments on the TRANSCOM Remedial Action Program:

"HUMAN BEINGS, WHO ARE ALMOST UNIQUE IN HAVING THE ABILITY TO LEARN FROM THE EXPERIENCES OF OTHERS, ARE ALSO REMARKABLE FOR THEIR APPARENT DISINCLINATION TO DO SO."
Douglas Adams

When I first came across the above quote it reminded me of why some Joint Universal Lessons Learned/Remedial Action Programs (JULL/RAP) are ineffective and why there is some hesitation on the part of an individual to submit a JULL/RAP issue. Mainly it is because nothing ever changes. However, a well-managed program will help eliminate the same problems from occurring time and time again, offer a method for exercise/contingency participants to address concerns, and provide resolution to issues. Below is how we manage the program here at United States Transportation Command (USTRANSCOM):

The first day I took over the United States Transportation Command (USTRANSCOM) JULL/RAP Cell my boss called me into his office and instructed me to rejuvenate the program. The former Program Coordinator vacated the position a year and a half ago, which left the program floundering for sometime.

In my pervious position (HQAMC/LG) I was aware that the JULL/RAP program existed, but really didn't know what a valuable tool it can be if utilized properly. Actually, I didn't come to full realization until a month after I took over the program. It hit me when I hosted my first Senior Officer Steering Group (SOSG) meeting—believe me it was a real eye opener.

I was amazed with the assertiveness, in-depth discussions, and painstaking effort demonstrated by this group of 25 professionals as they addressed the issues. As the meeting progressed and the group made their decisions on whether an issue should be considered tracked or non-tracked, I experienced first hand that this program has integrity and senior leadership does care. The decisions made at the SOSG meeting were forwarded to the Deputy Commander in Chief (DCINC) USTRANSCOM for final disposition.

Issues determined by the DCINC to be considered tracked issues, and the process owner is other than USTRANSCOM, were forwarded to Joint Staff J7 Exercise Analysis Division to be addressed at a future Joint Staff RAP Working Group. Tracked issues, where USTRANSCOM was identified as the process owner, were handled by sending memorandums to the appropriate agency/office requesting they appoint a point of contact (POC), provide status/progress reports every 90 days, and provide the resolution of the issue when complete.

In the past, issues determined by the DCINC to be considered non-tracked were contained in a database here at USTRANSCOM with no further action. This policy has since changed—we now send a memorandum to the appropriate agency/office of non-tracked issues instructing them to correct the problem identified and incorporate the corrective action in future exercises or operations. The benefit of incorporating this step in our process is two fold. First, the memorandum notifies the owner of the process that something is broken or requires additional attention. And second, it assures the submitter of the JULL/RAP that even though his/her issue will not be tracked it did go to the process owner for corrective action.

Basically we are putting more teeth into the program. We attend as many meetings as possible to get the word out that the JULL/RAP is alive and well at USTRANSCOM. We recently made several updates to our JULL/RAP Web Page (http://www.transcom.smil.mil/index.cfm) to better inform our customers of recent changes to the program. Some of the changes made are:

a. Updated USTRANSCOM RAP Working Group (WG) and SOSG members.
b. Updated the USTRANSCOM JULLS briefing slides.
c. Established a link to the JULLS Center database so a user can research the database.
d. Established a USTRANSCOM JULL/RAP E-Mail Address.
e. Assisted in developing Tab J (CINC Evaluation and Assessment Plan) in the USTRANSCOM Joint Training Plan.

Bob Netemeyer
USTRANSCOM RAP Coordinator
TCJ3-OPT, DSN 576-8026

The following two articles are Executive Summaries of the GLOBAL ENGAGEMENT 98 (GE 98) and GLOBAL ENGAGEMENT IV (1999) exercises hosted by the Air University College of Aerospace Doctrine, Research, and Education (CADRE), and conducted at the Air Force Wargaming Institute (AFWI), Maxwell Air Force Base, Alabama. The exercises consist of multi-level phases at both the Strategic Policy and the Operational levels of war designed to determine and validate the requirements of the future Aerospace forces, and to train senior level participants (CINCs, DOD, and non-DOD Agencies) and staffs in global joint operations.

Based upon the Chairman of the Joint Chief's *Joint Vision 2010* initiatives, *GLOBAL ENGAGEMENT: A Vision for the 21st Century Air Force* builds upon the results of each preceding exercise to test solutions to the issues previously identified and to explore emerging concepts. For example, in GE 98 one significant finding was "Effects Based Operations is a concept rich for exploration". In GE IV, one of the major exercise objectives involved exploring "Effects Based Operations".

Many excellent higher-level lessons learned are found in the GLOBAL ENGAGEMENT exercise series. These first two summaries are included in this edition of the JCLL Bulletin to present some of those findings. Future reports will be presented as they are received. Once approval is received, we will post the complete GLOBAL ENGAGEMENT After-Action Reports on the JCLL web pages (NIPRNET and/or SIPRNET) to allow further in-depth review.

Global Engagement 98
"Evolving the Expeditionary Aerospace Force"

Department of the Air Force
Washington, D.C.

The United States Air Force prepares for the new millennium in an era of increasing uncertainty. Our nation continues to refine our post-Cold War strategy to meet new threats, challenges and opportunities of a multipolar security environment. This strategy includes a new special emphasis on the critical importance of an early, decisive halt to armed aggression, to provide wider options for the use of military force and to create a window for diplomatic resolution. This new environment demands the Air Force transition to an Expeditionary Aerospace Force which takes advantage of the unique characteristics of aerospace power — speed, range, flexibility and overwhelming firepower.

Simultaneously, our nation and our service must employ emerging concepts and doctrine that fully exploit advances in technology. Our guide for this effort *Global Engagement: A Vision for the 21st Century Air Force,* which provides a corporate and operational vision for long-range planning and warfighting.

The *National Military Strategy* advances "Shape-Respond-Prepare Now" as our strategy for the next century. To support this strategy, the Air Force will continue to integrate its vision and core competencies to ensure it can meet the challenges of the 21st Century. As the Air Force develops new technologies, systems and operational concepts, the Global Engagement wargame series provides an environment to test and validate the expeditionary nature of aerospace power to support the NMS.

Based on past successes, Global Engagement 98 took place in two parts. First, from 9-11 June 1998, the Policy Game explored important issues surrounding the Expeditionary Aerospace Force, command relationships, coalition operations, information operations and response options to use of weapons of mass destruction. Second, the Operational Game, held from 16-20 November 1998, demonstrated the complexities facing a Joint Force engaged in a small scale contingency that quickly escalated into a major theater war in a difficult to support and undeveloped region of the world.

This Executive Summary presents key insights from Global Engagement 98. The United States Air Force offers these insights to national decision makers and all members of the Armed Forces. Reflection on these insights is meant to assist future national security planning and the ongoing exploration of emerging concepts and doctrine.

Global Engagement 98 Background

For the last fifty years, the clear threat of the Soviet Union and the Warsaw Pact framed the strategy of the Armed Forces of the United States. The predictable nature of the Cold War created serious, although straight forward, challenges for U.S. force planners. During this bipolar era, the U.S. emphasized quality over quantity in its personnel, equipment and training. Operation DESERT STORM validated the quality of our forces and foreshadowed the current Revolution in Military Affairs, as the U.S.-led coalition prevailed over a numerically superior Soviet equipped aggressor.

As the world's only remaining superpower, the U.S. continues to refine its post-Cold War strategy. Confronted with decreasing fiscal resources and an increasingly diverse threat, U.S. force planners and command-

ers must develop and employ a 21st century military suitable for the challenges of this multipolar world. Together, planners and commanders must get the most out of a force based on quality people and equipment. The 21st century force must meet challenges across the full spectrum of military operations with the speed, range and accuracy which will enable decisiveness in all environments.

To develop and explore concepts to meet these challenges, and under guidance from Title 10, United States Code, the Chief of Staff of the Air Force (CSAF) commissioned a strategic-level series of wargames entitled Global Engagement. The intent of this wargame series is to explore the way the Air Force team will fight in the future-—as an expeditionary force and member of the Joint team. This approach ensures the best new concepts from the Air Force will benefit our Joint Force.

To achieve this objective, the wargame must truly be Joint. Only when individual Service forces join to form a synergistic whole, can the true value of a particular service's contribution to the Joint Force be seen. Therefore, Global Engagement 98 drew participants from the staffs of all the warfighting Commanders-in-Chief (CINCs). Additionally, players were invited from other Department of Defense (DoD) and non-DoD federal agencies to increase game fidelity in response to a real-world crisis, as well as to broaden the learning of all participants.

Global Engagement 98 operational concepts were firmly grounded in both Joint and Service visions. The Chairman of the Joint Chiefs of Staff's *Joint Vision 2010* guides efforts in development of the 21st century Joint Force. The Air Force's *Global Engagement: A Vision for the 21st Century Air Force* flows from both the *National Security Strategy* and *National Military Strategy,* with its six core competencies firmly grounded in the concepts of *Joint Vision 2010*. Moreover, the Air Force vision embodies the belief that aerospace power will be the 21st century strategic instrument of choice.

Global Engagement 98 has strengthened this belief, while highlighting the need for potential Joint Force improvements that will enable the U.S. Armed Forces to meet the threats, challenges and opportunities of the 21st century.

Global Engagement 98 Scenario

Scenario Development

The planners of Global Engagement 98 developed a detailed scenario that balanced wargame realism with a workable organization to explore emerging operational concepts and future weapon systems. The scenario for Global Engagement 98 was based on escalating hostilities in an oil-rich former Soviet state in the Caspian region in the year 2008. The disintegration of civil order in Azerbaijan prompted both the Russians and Iranians to intervene, each claiming the existence of a clear and present danger to respective national security interests. The scenario was not meant as a prediction of the future, but was developed to stress Expeditionary Aerospace Force operations. The Operational Game demonstrated the enormous complexities confronting a Joint Force engaged in a smaller scale contingency that escalates into a major theater war against a rogue asymmetrical competitor.

Wargame Structure and Organization

Global Engagement 98 was divided into two parts: a Policy Game and an Operational Game. The Policy game was played from 9-11 June at a facility near Washington, D.C. The Policy Game established the political

framework for the Operational Game and explored important issues surrounding the Expeditionary Aerospace Force, command relationships, coalition operations, information operations and response options to use of weapons of mass destruction. The College of Aerospace Doctrine, Research, and Education (CADRE) hosted the Operational Game at the Air Force Wargaming Institute (AFWI) at Maxwell Air Force Base, Alabama from 16-20 November. The Operational Game was actually three parallel games played simultaneously. Each game—or panel—was comprised of Red, Blue and Assessment teams. An additional Senior Panel of military members from the United Kingdom and Australia, executive level civilians, and U.S. flag officers dealt with national and coalition security issues. The Blue teams were led by retired senior officers — General John A. Shaud, USAF, General J. H. Binford Peay, USA, and Admiral Leighton W. Smith, USN. The staff and component players were from the Unified Commands and various DoD staffs, Service staffs and federal agencies.

Testing Emerging Operational Concepts and Future Weapons Systems

Building on the success of Global Engagement 97, game designers crafted the objectives from the conceptual template for joint warfighting expressed in *Joint Vision 2010*, the Air Force's core competencies, the Air Force's Global Engagement Operations concept and the evolving conceptual framework of the Expeditionary Aerospace Force. The specific objectives for GE 98 were:

- Shape Air Force thinking about *Joint Vision 2010* emerging operational concepts
- Demonstrate the Expeditionary Aerospace Force concept in a no-plan scenario
- Examine Halt and Win phases in a Major Theater War
- Refine Focused Logistics and Agile Combat Support concepts
- Stress the domain of mobility capabilities

Global Engagement 98
Policy Game Insights

The Policy Game was designed to provide the political framework for the Global Engagement 98 Operational Game and insights on issues of interest to the CSAF. Selected senior representatives throughout the national security community were asked to develop strategic and operational policy decisions based on the game scenario. In addition to providing policy guidance to the Operational Game, other specific objectives of the game were to:

- Develop potential aerospace power contributions to the National Security Strategy and the National Military Strategy
- Identify potential and actionable steps affecting the Air Force and national decision makers
- Provide a forum to advance interagency cooperation

The Policy Game explored a complex operating environment, testing Unified Command Plan command relationships and postulating what further refinement might be required. The participants believed that a transition from one supported Commander-in-Chief to another in an expanding conflict such as this scenario presented, must be planned for and exercised. This task would be difficult enough in a unilateral U.S. intervention. However, the deployment of a broad range of coalition forces further raises the complexity factor. Participants saw the need for further refinement of the processes and procedures for release of information to allied forces.

The scenario provided for an exploration of reachback capabilities in relation to computer network defense and information operations. Because reachback can play such a critical supporting role in the conflict, partici-

pants felt additional analysis of its vulnerabilities and the process for system-wide protection was necessary. Space systems were the key to the effective use of this tool. The Policy Game participants also felt a set of dramatic conventional and information operations response options to the use of chemical and biological weapons should be developed.

Policy Game participants identified airlift, supportability, deployment phasing and force protection as challenges for the future of the Expeditionary Aerospace Force concept. In assessing this situation, it became clear that more analytical efforts are needed to transform this concept into a fully functional Air Force reality for the 21st century.

Global Engagement 98
Operational Wargame Insights

Given today's strenuous operations tempo, one does not often get the opportunity to step back for a few days and participate in the rigorous, thoughtful enterprise of shaping the future of national security. For a week in November, some 370 uniformed and civilian warriors participated in Global Engagement 98 (GE 98), a Chief of Staff of the Air Force Title 10 wargame. This year, the game focused on a smaller scale contingency in the Caspian Sea region, set in the year 2008, that developed into a major theater war. The scenario included conflict arising between regional powers that appeared to be heading to an exchange of weapons of mass destruction. The United States and its allies were asked to intervene and ensure the free flow of oil from the region, and hence became engaged in hostilities. Given the no-notice nature of the scenario and the relative inaccessibility of the region, the nation's aerospace forces took center stage as the force element most suited to bring combat power to bear in the most expeditious manner. Thus, GE 98 examined various aspects of the Air Force's Expeditionary Aerospace Force concept.

This year's game was the most complex—and most successful—of the Global Engagement series, bringing to light significant areas ripe for future analysis and assimilation. Hence, this report provides a candid appraisal of the Expeditionary Aerospace Force, as presented today, and the supporting operational concepts that will be enablers for future application of aerospace power—Global Engagement Operations and Effects Based Operations.

The following paragraphs highlight significant findings gleaned from game play in GE 98:

· **The Expeditionary Aerospace Force (EAF) was a viable concept for both force management and force presentation within the wargame.** When fully developed by the Air Force, the expeditionary nature of aerospace power should provide Joint commanders an immediate instrument of power for deterring or fighting future conflicts. Robust platforms, precision munitions, logistics sustainment, and force protection must be fully integrated to provide decisive combat power in a timely manner.

· **Global Engagement Operations, as a strategic concept for the application of aerospace power, is sound. However, Global Engagement Operations must deliver the message that the Air Force conducts parallel and asymmetric operations. Unfortunately the Halt and Win concepts tapped into some previous concerns with members of the sister Services.** The Halt and Win connote sequential operations to casual observers, thus underplaying the parallel operations potential of aerospace power. An Air Force white paper will better explain the Joint-friendly language of Global Engagement Operations for the Joint Force Commander.

· **Effects Based Operations is a concept rich for exploration**. Effects Based Operations, once under stood and accepted by the players, simplified game moves. Players began to fully integrate warfighting capabilities to achieve enduring outcomes in battle as opposed to worrying about target sets. Further, this concept provided common ground for all services to coordinate warfighting activities.

· **The nation may face shortfalls in airlift and tanker assets.** The quick response requirement for expeditionary force packages makes it a mobility-intense consumer. Procurement of additional lift and refueling capability should be considered in order to increase the operating margin for development response times, to enhance sustainment, and to increase the lethality of the expeditionary forces.

· **The logistics concepts required to support the operations under the EAF concept are solid. Sustainment of operations is heavily dependent on C2 reachback capabilities, which were vulnerable to interruption during the game.** Any friction imposed on the logistics sustainment effort rippled through all operations. When sustainment was diminished, the halt phase was extended, subsequently placing greater demands on airlift, tanker support and force protection.

· **Long Range Attack Assets appear to be of utmost importance in expeditionary operations, allowing aerospace power to be applied quickly and decisively.** It seems the very foundations of the Air Force were validated in that Long Range Attack Assets were the first platforms to engage the enemy. Continuous operations with these platforms allowed the following force to close in an orderly manner, metering combat power into the theater in such a way as to bring mounting pressure on the adversary.

· **In the future, one must appreciate the fact that the battlespace is global and that force protection considerations are far more pervasive than in the past.** The operational risks of future conflicts will provide joint commanders incredible challenges, as the forces will be at risk regardless of their location on the Forward Edge of the Battle Area or at home.

Detailed insights are arranged by specific game objectives:
· **Demonstrate the Expeditionary Aerospace Force concept in a No-Plan Scenario**
· **Examine Halt and Win Phases in a Major Theater War**
· **Refine Focused Logistics and Agile Combat Support Concepts**
· **Stress the Domain of Mobility Capabilities**
· **Shape Air Force Thinking About JV 2010 Emerging Operational Concepts**

Insights into the Expeditionary Aerospace Force (EAF) in a No-Plan Scenario

The parallel employment of all Air Force expeditionary assets and capabilities can provide the Joint Force Commander with the most rapid and effective response to a no-plan scenario. The assets employed would consist of in-place space based ISR assets, information warfare capabilities, long-range attack assets (LRAA), other in-theater Joint air forces along with the remainder of the tasked forces to achieve deterrence or a rapid application of aerospace force to stop aggression. Fast, effective employment of LRAA assets depends on rapid and robust targeting information from in-place space based intelligence, surveillance and reconnaissance assets.

The Commander of Air Force Forces (COMAFFOR) prioritizes the deployment of expeditionary forces according to the Joint Force Commander's immediate required effects. In addition, rapid planning capability for force employment upon arrival in theater enables early operations in a no-plan scenario.

The enabler employed in GE 98 for support of global operations was a robust fleet of prepositioned munitions ships that were strategically located for rapid response in support of expeditionary operations. Additionally, the EAF relied upon smart, lightweight munitions that kept the forces light, lean and lethal and were necessary to achieve the goal of increasing the effectiveness of combat assets.

Reducing the logistics footprint by collocating similar aircraft types at a limited number of bases should be explored as the AEF concept develops. Basing like assets together should reduce logistics friction and provide economies of scale in most categories of support equipment, munitions and other consumables.

Effective reachback requires that the AEF have the necessary equipment for high bandwidth connectivity and matching information defense measures to maintain uninterrupted command and control. Reachback vulnerabilities were readily apparent in Global Engagement 98.

Proximity to the battle area is one factor that affects sortie rates. The closer the forward operating locations are to the area of operations, the more sorties that can be generated. However, stronger force protection from air and surface forces will be required. Trade-offs between operational need and force protection requirements must include a balance between an effective theater ballistic missile defense architecture and ground-based security forces to counter the conventional threat to forward operating locations.

Insights into the Halt and Win Phases in a Major Theater War

Global Engagement Operations (GEO), the Air Force's emerging strategic employment concept, contains extensive elaboration on the meaning and intent of the Halt and Win phases of combat operations. Airmen are engaged in the healthy and helpful dialogue that will inevitably refine the GEO concept.

In Global Engagement 98, Joint aerospace forces brought about successful "Halt" by specifically preventing enemy heavy armored forces from achieving link-up and stopping their movement. The Halt was achieved by a combination of resolve on the part of the National Command Authorities to act on strategic warning, opportune logistics support capabilities at forward operating locations, and the early positioning of mobility assets. These are all areas that require further refinement to achieve greater effectiveness.

Even with the successful Halt brought about by Joint forces, a few enemy forces were able to invest a heavily populated urban area. This is a problematic arena that the Air Force may wish to examine in detail. How can aerospace forces best contribute to combat operations in an urban environment?

Presentation of expeditionary forces appears to have extremely small margins for error in decision-making. The paucity of tanker and airlift assets, the lack of logistics depth and relatively small stockpiles of precision munitions exaggerate the negative impact of poor command and control. In a perfect world, the NCA would have strategic warning, willing coalition partners and unimpeded access to staging bases around the world. However, such circumstances will seldom be the norm.

Global Engagement 98 once again highlighted the importance of coalition building. Coalition aerospace power may have expedited employing, closing and sustaining expeditionary forces in this scenario. However, the panel members were slow to integrate coalition members. Interoperability with potential coalition partners seems a rich area for in-depth analysis.

Insights into Focused Logistics and Agile Combat Support

The EAF concept will rely on a logistics system with an in-theater footprint significantly smaller than that of today's deploying units and which is capable of supporting the full spectrum of aerospace operations for the Joint Force Commander. GE 98 investigated the impact on expeditionary operations of the Joint Vision 2010 "Focused Logistics" and Air Force's "Agile Combat Support" concepts.

Forward Operating Locations (FOLs) and Forward Support Locations (FSLs) are concepts that were essential elements of logistics support of expeditionary operations. The FOL concept for GE 98 included a detailed pre-evaluation of the available air bases in the theater, specifically examining the adequacy of airfield landing and parking surfaces, water, fuels, munitions and billeting. Like the pre-planning for the FOLs, the GE 98 FSL concept included four FSLs to serve as major logistic support centers. These large supply, munitions, and maintenance hubs were strategically located in the theater and had a favorable impact on the successful sustainment of forces at the FOLs.

The Time Definite Delivery (TDD) concept enabled expeditionary forces to move out and engage in theater with a significantly smaller logistics footprint. However, TDD appears to be fragile due primarily to dependency on computers and communications. Protection of logistics command and control and logistics information systems is essential to the success of TDD and reachback concepts. Development of robust protection measures for logistics C2 systems appears necessary.

Additionally, force protection for forward support and operating locations was absolutely critical and warrants close examination. Theater ballistic missile and special operations forces attacks against sustainment installations and systems, especially using chemical and biological weapons, appeared to be a great threat to the effectiveness of Agile Combat Support to expeditionary operations.

Insights into the Domain of Mobility Capabilities

Rapid Global Mobility is an essential enabler of the EAF concept and the ability of mobility forces to support expeditionary operations is essential to its inherent responsiveness. The quick response requirement for expeditionary operations makes the expeditionary forces a mobility-intense consumer. The employment of long-range attack assets, deployment of expeditionary forces and the support of airlift operations highlighted the strident competition for air refueling assets. The critical and fragile nature of the tanker bridge was evident during the game.

In order to present expeditionary forces as a means by which the National Command Authority and Joint Force Commanders can apply combat power within a matter of hours, the ability of the mobility system to respond in a correspondingly shorter time frame is a must. Preparation of mobility forces to support expeditionary operations can enable the rapid response of aerospace forces and therefore enhance readiness. The ability to support expeditionary forces relied on acting on strategic warning to begin deploying the Global

Reach Laydown packages and pre-positioning tanker assets. It also required achieving relatively high volunteer rates (40% for tankers) prior to C/D-day, Presidential Selective Reserve Call-up (PSRC) and CRAF Stage I activation coincident with C/D-day. Historical precedent suggests that the national security decision-making process may not be quite as responsive.

The early introduction of chemical and/or biological agents into combat can significantly disrupt the flow of critical personnel and equipment into the theater. Early deployment of decontamination systems and individual protective equipment, while enhancing force protection and the ability to operate in a chemical/biological environment, may also adversely affect force closure times. Continued exploration of weapons of mass destruction considerations (both lethal and non-lethal) on the deployment of forces appears necessary.

Insights into Space and Information Operations

Space and information operations will be crucial to the success of the EAF. Full operational implementation of advances in space capabilities and information operations will provide Joint Force Commanders with an exceptional range of choices for planning, coordinating, and executing effects based operations. GE 98 highlighted many of the more commonly perceived and expected contributions of emerging space and information operation technologies on the future operational employment of the EAF concept.

Space

The reality of widely available and militarily significant commercial imagery will grow in the future such that one nation may not be able to deny adversaries the broad information base that space-based capabilities provide, even if destructive measures are eventually authorized. In the globally dispersed and commercially diversified space information market, there are too many third party suppliers to efficiently or effectively reduce the quality or quantity of space-derived imagery and information from reaching enemy forces. Campaigning against space platforms may drive us to look at different ways of attacking this capability including the development of better decision-making processes on our part.

There is also an increasingly important requirement to systemically improve C4ISR computer modeling, simulation and analysis. Our future ability to rapidly and systematically understand and respond to the effects of information operations and physical attacks on our space infrastructure as these attacks are occurring could be the difference in maintaining the edge over potential near-peer competitors or adversaries.

In another area, growing allied and U.S. reliance on the Global Positioning System (GPS) is a recognized vulnerability. Platforms, as well as weapons, will be introduced that have GPS as an embedded primary guidance requirement. We should consider further analysis of GPS vulnerability to find appropriate operational or technical solutions.

The panels recognized that space-based capabilities were important to successful expeditionary planning, coordination and execution. However, there was little understanding of the capabilities, missions, doctrine, employment and command/control of space forces. Educating Air Force and Sister Service warriors is important not only for advancing the intellectual foundation for the EAF concept, but also for shaping the cultural changes needed to ensure the success of the Air Force's aerospace integration effort.

All of the panels recognized the importance of improving air, space, intelligence and information forces integration. Consideration should be given to how best to incorporate space, intelligence and information operations under the Joint Force Air Component Commander (JFACC). The JFACC has a theater-wide view and integrating space, intelligence and information operations as adjuncts to the JFACC is a natural progression that should facilitate the eventual development of an integrated tasking order.

Information Operations

The Joint Force Commander must have timely access to information and be able to employ all information operations capabilities so as to carry out NCA guidance. In this game, each of the panels decided on a single point-of-contact to coordinate information activities throughout the staff, but organized their staffs differently to conduct information operations. Pulling together all information operations elements from across the national security team under the direction and leadership of the JFACC should be a priority.

During the game, panel members recognized information vulnerabilities and used information operations tools to manage Information Conditions (INFOCONs). As a result, friendly forces were successful in mitigating many enemy information operations attacks. Such actions did not come without cost. Consideration should be given to the further development of modeling and simulation capability focused on information operations. This would allow players to better understand the impact on combat operations of implementing INFOCONs and conducting information operations.

Even the most conservative interpretation of enemy success indicated expeditionary force employment and logistics flow were adversely impacted and extremely vulnerable to enemy information operations attacks. The reliance on a robust reachback capability will require concerted efforts directed at enemy information operations.

Global Engagement 98: Conclusion

Global Engagement 98 reaffirmed the importance of all six Air Force Core Competencies and *Joint Vision 2010's* operational concepts. A multidimensional enemy, willing to employ weapons of mass destruction, necessitates expeditionary aerospace power and its key enablers: Global Attack, Precision Engagement, Air and Space Superiority, and Information Superiority. This wargame strongly suggests the Expeditionary Aerospace Force concept provides Joint commanders an immediate instrument of power for deterring or fighting future conflicts. Robust platforms, precision munitions, logistics sustainment, and force protection must be fully integrated for the Air Force to provide decisive combat power in a timely manner.

The quick response requirement for expeditionary forces makes it a mobility-intense consumer. Additional airlift and air refueling capability should be considered in order to increase the operating margin for deployment response times, to enhance sustainment, and to increase the lethality of expeditionary forces. Any friction imposed on the logistics sustainment effort rippled through all operations. When sustainment was diminished, the halt phase was extended, subsequently placing greater demands on airlift, tanker support and force protection.

It seems the very foundations of the Air Force were validated in that Long Range Attack Assets were among the first platforms to engage the enemy. Continuous operations with these platforms allowed the follow-on force to close in an orderly manner, metering combat power into the theater in such a way as to bring mounting pressure on the adversary.

Force protection considerations are far more pervasive than in the past. The operational risks of future conflicts will provide Joint commanders incredible challenges, as the forces will be at risk regardless of their location—on the Forward Edge of the Battle Area or at home.

Realizing the full potential of space capabilities and information operations in a future battlespace requires integration into Joint operations. Space and information operations will be crucial to the success of the EAF. Full operational implementation of advances in space capabilities and information operations will provide Joint Force Commanders with an exceptional range of choices. The next millennium will offer new threats, challenges and opportunities in space and information operations.

We in the Air Force may need to better explain the language of Global Engagement Operations for the Joint Force Commander. Global Engagement Operations must deliver the message that the Air Force conducts parallel and asymmetric warfare, providing the Joint Force Commander dominant maneuver — above and beyond.

Effects Based Operations is a concept rich for exploration. Effects Based Operations, once understood and accepted by the players, simplified game moves. Players began to fully integrate warfighting capabilities to achieve enduring outcomes in battle as opposed to worrying about target sets. Further, this concept provided common ground for all services to coordinate warfighting activities.

The Global Engagement series will continue to explore these important issues and others as the Air Force continues to fully develop its potential as a 21st century Expeditionary Aerospace Force. By meeting the threats, challenges and opportunities of Joint warfighting, the Air Force can better prepare itself for the uncertainties of the future and thus better defend our nation.

Global Engagement IV: The Next Step

Global Engagement IV (GE IV) will continue to explore the potential of aerospace forces in a challenging and plausible scenario. GE IV will consist of three Policy Seminars held in Washington, DC on 26 April, 14 July and 1 September 1999. New this year are six Core Competency Seminars to refine the operational game issues. These seminars will be conducted, three at a time, at the Air Force Wargaming Institute (AFWI) during 4-6 May and 10-12 August 1999. Finally, the GE IV Operational Game will be held at AFWI during 24-29 October 1999. The scenario will include a swing of forces from one concluding major theater war to an unfolding crisis/major theater war in another region. The specific objectives for GE IV are as follows:

- Identify gaps between evolving Expeditionary Aerospace Force capabilities and Joint Vision 2010 operational concepts.
    - Using the overarching strategy of Global Engagement Operations.
    - Examine within the construct of the six Air Force Core Competencies.

- Explore Dominant Maneuver from Above and Beyond concepts.
    - Examine Aerospace Power as a Maneuver Force.
    - Use Effects-Based Operations.
- Refine Agile Combat Support and Rapid Global Mobility concepts in support of the EAF concept.
- Examine Information Fusion.
    - Focus on integration of information operations and space.
    - Focus on information sharing, distribution and interoperability.
    - Focus on information protection, Global Grid and reachback.
- Investigate required contribution of the Air Reserve Component to support and integrate into the EAF concept.
- Continue to examine issues gleaned from:
    - GE series.
    - Other Service Title 10 wargames.
    - Joint Experimentation.

In examining these issues, the Global Engagement wargame series will continue to highlight the contribution of aerospace forces. The Air Force Chief of Staff invites your participation in building expeditionary Global Awareness, Global Reach and Global Power for America.

Global Engagement IV
United States Air Force - Executive Summary

Introduction

The Global Engagement Wargame series is sponsored by the Chief of Staff of the United States Air Force (CSAF), providing insight into future warfighting concepts and contributing to national defense through the Title 10 process. Global Engagement IV (GE IV) was the most recent wargame in the series, culminating in an operational game staged at the Air Force Wargaming Institute, Maxwell Air Force Base, AL, 24-29 October 1999. The GE IV operational game was the final event in a yearlong development effort to examine objectives directed by the CSAF and framed by the Air Force Core Competencies and Joint Vision 2010.

Scenario

The scenario for GE IV focused on a near-simultaneous two major theater of war conflict in the year 2010. Initial hostilities occurred on the Korean peninsula, followed closely by aggression on the part of Iraq against Kuwait and Saudi Arabia. During the build-up to hostilities, the United States instituted appropriate mobilization measures to ensure the ability to meet the threat in Korea. As tensions grew in Southwest Asia (SWA), policy makers and military commanders were faced with the difficult challenges of formulating policies and courses of action to meet the crisis of fighting two major theater wars.

Game Development Process

Given the complexity of the scenario and the nature of the game objectives, designers instituted an iterative development process. Initial planning conferences mapped the strategy for game development. The desired outcomes were to gain concise policy guidance from interagency actors and then to operationalize that guidance. To that end, the executive agent for the game staged an interlinking series of policy and core competency seminars. The outcomes of this activity were used to refine issues for the operational game and focus data collection for after-action reporting.

Global Engagement IV Objectives

- Identify gaps between evolving Expeditionary Aerospace Force (EAF) capabilities and Joint Vision 2010 operational concepts
  - Using the overarching strategy of Global Engagement Operations
  - Examined within the construct of the six Air Force core competencies
- Explore Dominant Maneuver from Above and Beyond concepts
  - Aerospace power as a maneuver force
  - Effects Based Operations (EBO)
- Refine Agile Combat Support and Rapid Global Mobility concepts in support of the EAF

- Examine Information Fusion
  - Focus on integration of information operations and space capabilities
  - Information sharing, distribution and interoperability
  - Information protection, Global Grid and reachback
- Investigate the required contribution of the Air Reserve Component to support and integrate into the EAF
- Continue to examine issues gleaned from:
  - The Global Engagement Wargame series
  - Other Title 10 wargame activities
  - Joint Experimentation

Key Issues

Throughout the game process, several key issues surfaced that took special significance in the context of GE IV. The iterative process used in the game allowed themes to be followed from policy inception through execution in the operational game. Many of these issues concerned actions that would be required to enable the United States to execute a two-theater war. Other significant issues dealt with changes in warfighting philosophy. All issues revealed in GE IV are rich for further analysis and wargaming and should be thoroughly examined by those charged to defend this nation in the future. The following paragraphs highlight those key issues revealed in the game.

Support Forward

Warfare in 2010 will require the United States to shorten the current accepted time requirements for getting combat power to the crisis area. A potential key enabler of future Global Expeditionary Operations is the forward positioning of critical support assets. Several initiatives could enhance timely application of force:

- Forward Support Locations—Regionally dispersed operating bases that can be used as transshipment points, consolidated intermediate maintenance activities and storage locations for munitions, war reserve material and critical material handling equipment.

- Forward Operating Locations—Robust facilities where forces can deploy and begin combat operations. These facilities would have the requisite munitions, fuel, water, vehicles and other support equipment to facilitate rapid application of force.

- Accelerated Rapid Global Mobility—Basing forward Air Mobility Operations Groups and Tanker Airlift Control Elements, shortening the time to build the mobility infrastructure and liberating lift to move combat assets.

- Rebasing of tankers to overseas locations, again shortening the time required to build the tanker bridge.

These concepts, in their early stages of development, appeared to significantly enhance expeditionary force operations.

Simultaneous Deployment and Employment

In future crises, the perpetual competition for lift is manifested most significantly in balancing deployment of force protection assets with building combat power in theater. In GE IV, commanders were required to think in terms of effects, thus seeking capabilities as opposed to particular units. Service and command relationships were supplanted by considerations of concomitant capability and relative ease of deployment. As threats from tactical ballistic and cruise missiles grow, the competition will be even stiffer.

Commanders will have to consider the entire spectrum of forces available for application—kinetic and non-kinetic—that will allow commanders more time to deploy required capabilities.

Dynamic Shift

The conventional construct of "swinging" forces from one theater to another does not seem to capture the requirements of commanders to conduct two-theater warfare in 2010. Commanders will need to consider forces with capabilities that can service multiple theaters near-simultaneously. Those charged with allocating assets to competing CINCs may be able to "dynamically shift" assets from one theater to another then back again. Again, thinking in terms of effects helps underpin the decision calculus. In GE IV, dynamic shift was effective for allocating theater missile defense assets (Airborne Laser), bombers, overhead ISR assets and other high demand/low density capabilities from one theater to another. Aerospace capabilities seem most suited to dynamic shift.

Early Introduction of Ground Forces

The introduction of ground forces early on in SWA changed the character of the operational and strategic situation in the theater. Uncertainty of possible use of ground forces persuaded the enemy to change plans and exposed adversary ground forces to broad-spectrum attack. The criticality of having ground force capability rapidly available contributes to achieving the necessary effects to deter enemy action, alter enemy plans, expose enemy vulnerabilities or defeat the enemy in a conflict's earliest stages.

Other Significant Issues

Dominant Maneuver (from Above and Beyond)

Dominant Maneuver appears to be one of the singularly defining characteristics of the future Air Force which highlights the contributions to dominant effects. The transformation of capability may be achieved predominantly through the employment of precision weapons, but can be enhanced by full spectrum application of force, both kinetic and non-kinetic. Understanding the inherent capability of aerospace forces is the foundation of developing a full comprehension of Effects Based Operations.

Effects Based Operations

Effects Based Operations continues to be a rich area of intellectual development for considering future warfare. Most Blue players in the operational game seemed to embrace EBO as a construct for determining the best approaches to applying force in combat. Thinking in terms of capabilities instead of units or weapon systems allowed participants to formulate highly effective campaign plans that avoided attrition warfare, mitigated adversary attempts at asymmetric warfare and allowed allied commanders to seize the initiative at an earlier point than anticipated. EBO calculations had a significant and positive impact on deployment planning, thus facilitating the building of combat power as rapidly as possible.

Criticality of the Air Reserve Component (ARC)

As force structures change, careful consideration of Air Reserve Component contributions to the total force needs continuous scrutiny. In the recent past, the reserve component has kept apace of force modernization. However, the full integration of the ARC into the Expeditionary Air Force will require further development. OPTEMPO, systems capabilities and overseas basing of support assets may force a revised active duty/ reserve mix.

Information and Space Operations Integration

In GE IV, information operations and space forces capabilities were considered as additional "bullets" for the CINC, not "silver bullets" as has been the case in other wargames. The operational wargame showcased the

impact of using capabilities as the measure of merit for contribution to the overall effort. Space and information capabilities, applied early on, provided the CINC time to bring other capabilities to the theater. Most space and information capabilities require no lift, tanker support or follow-on sustainment.

Title 10 Wargames

These service-specific games have major joint force commonalties. Game participants suggested that it might be useful to consider the establishment of complementary, cross-service wargaming themes. Such themes could serve to enable the service game developers to use planned capabilities of sister services across mutually agreed time frames. This method of cooperation would not constrain the gaming process from a Service perspective, but it would foster more credible game play.

The Road Ahead

Global Engagement IV, as is the case with any wargame, did not provide the answers to difficult issues and questions. However, GE IV provided a strong signal as to which questions and issues require timely action towards concept development, refinement or analysis. Based on the outcomes of GE IV, there are several key issues that should be further examined:

Agile Combat Support/Rapid Global Mobility

The ongoing Agile Combat Support concept development by HQ USAF should include requirements determination and analysis of the ACS support needed by AMC and the relationship of ACS support required from AMC.

Dominant Effects

USAF/XO and Air University (AU) will review game insights to further define the relationships between, and the concepts of, Global Expeditionary Operations, Dominant Maneuver from Above and beyond and Effects Based Operations.

Dynamic Shift

Air University will research and analyze the issues and develop a framework for the Dynamic Shift concept.

Theater Ballistic Missile Defense

The Air Force should continue to work the integration of Airborne Laser (ABL) and attack operations into a theater missile defense concept and participate fully in Army missile defense efforts.

Early Introduction of Ground Forces

The Air Force will work with the Army in support of Expeditionary Aerospace Force concept development and refinement. Support could include wargaming, analysis, doctrine development and concept development.

Conclusion

The Global Engagement series has grown in fidelity and utility each year since its inception. This year's GE IV accelerated that trend to a heightened level of sophistication. Through an elaborate array of seminars, GE IV established realistic, over-arching national security policies, while scrutinizing Air Force core competencies in their ability to underpin emerging Air Force employment concepts. These results were infused into an operational game designed to explore and characterize future gaps and shortfalls of emerging Air Force employment concepts and strategies. As this nation prepares itself to meet future challenges, the ever-increasing worth of the Global Engagement series becomes more evident.

These are the significant insights gleaned from GE IV. The full report goes on to cover every aspect of the GE IV process. Observations captured in this report were done so in a fashion designed to minimize bias. The Road Ahead portion contains expanded issues to be addressed by the Air Force as it continues to build on current strengths. The Air Force legacy is one of strength and pride. Our nation must continue to be provided responsive, flexible aerospace forces; forces capable of engaging global challenges, decisively, in a world defined by increasing uncertainties.

Lessons from Combined Rules of Engagement

By Commander Mike Spence, U.S. Navy

Dealing with rules of engagement is hard enough when only one country's forces are in the field or at sea. Problems multiply, however, when rules of engagement must be developed for multinational forces. The U.S. experience in Kosovo is only the most recent example of this increasingly common trend of combined operations around the world. Learning to cope with other countries' conflicting notions of the rules of warfare is an inevitable part of the 21st century's brave new world.

During the past decade, many nations have reduced their military force structures while simultaneously increasing their involvement in nontraditional military operations. As these trends merge the role of the modern warrior with that of the peacekeeper, rules of engagement (ROEs) are becoming evermore indispensable in applying military force. This was demonstrated by NATO's attempt to draft comprehensive, standing rules of engagement while simultaneously participating in the alliance's first operational deployments.

From 1993 to 1996, maritime operations planners at Supreme Headquarters, Allied Powers Europe, and the headquarters of the Supreme Allied Commander, Atlantic, led the effort to draft NATO's first attempt at comprehensive joint, standing rules of engagement. This document, "Joint Combined ROE," originally was intended to establish general NATO ROE policy, and serialized rules for land, air, and naval forces. This task fell to naval planners because NATO standing ROEs had been strictly a maritime affair until the early 1990s.[1] Land and air "ROEs" amounted to tactical direction on countering Warsaw Pact incursions into NATO territory or airspace. In 1993, addenda were proposed to NATO standing naval ROEs, in response to new mission requirements brought to light during Operation Sharp Guard.[2]

Participation in Operation Deny Flight[3] that same year highlighted NATO's need for full-spectrum ROEs. The Joint Combined ROE working group was established to draft comprehensive policy guidance and a compendium of measures to cover air, land, and sea contingencies. Coincidentally, this work also was used to form the foundation of what would become the ROE annex to the operation plan for Operation Joint Endeavor.[4]

For Western-style democracies, rules of engagement provide the means by which the legal and political arms of government regulate the use of military force. Rules dealing with the traditional military uses of force are expressed easily within the confines of national and international laws and conventions. Complications begin to arise, however, with the expansion of the military's role in so-called peace support missions. Paramilitary or police functions such as boarding and seizure, crowd control, and protection of civilians are becoming the day-to-day staples of many armed forces. This gray area increases the importance of clear, concise ROEs in describing the limits of the military's ability to use force.

Political guidance determines the ways in which these legally based instructions affect each commander's and soldier's tactical decisions. The tactical impact of legal and political influence depends on a number of factors: the type of government; the government's relationship with its military; the country's culture; and the nation's recent experience in conflict. This final factor has a subtle way of influencing both the application of ROEs in the use of force by the military and the nation's interpretation and enforcement of its own laws and political guidance.[5]

Finally, rules of engagement must reflect and support the commander's operational mission statement. The two must be compared continually to ensure that they remain in agreement. In this regard, ROEs should be considered another tool for the operational commander's use in accomplishing his mission. When political authorities establish or change an operation's objective, along with a review of the order of battle, a commander also must examine the approved rules to ensure that they permit the proper use of available force. If the commander does not consider the politically approved ROEs effective enough to accomplish the mission, civil authorities either did not understand the mission's requirements or the commander misinterpreted his objective. In either case, the misunderstanding must be resolved before troops get to the field.

ROE Mind-sets

The language and application of rules of engagement are controlled by two contrasting mind-sets: permissive and restrictive. The permissive mind-set contends that commanders should be allowed to use all resources at their disposal to accomplish their missions, except those that are specifically prohibited by ROEs. The restrictive mind-set is the view that commanders may use only those resources specifically allowed by ROEs. While U.S. ROEs generally are permissive, many NATO nations have more restrictive national ROE systems. Problems arise when the two contrasting ROE mind-sets meet, as in the development and approval process for a multination operations plan. In any attempt to reach compromise, it is easier to provide some restrictions in a permissive approach than to liberalize a restrictive one. A method to accomplish this is to adjust approval authority for the use of specific weapon systems not anticipated for use in self-defense to an acceptably high level within the chain of command.

Self-defense

Self-defense is a national prerogative, but coalition political and military leaders still must understand thoroughly the implications of contrasting national self-defense policies. This is especially important in military missions where the threat may be ill defined and the most likely use of force will result from an individual or small-unit act of self-defense.

While most nations accept self-defense as the inherent right of military personnel, some take what they feel to be a more pragmatic approach. They foresee situations where self-defense by the military may be clearly subservient to an operation's overall political objective. As such, military forces may be severely restricted in their ability to respond to hostile intent. In fact, the outright extension of the right of self-defense, to include actions perceived to show hostile intent, has until recently, been rare beyond U.S. forces.

For most nations, a response to hostile intent or the commission of a hostile act is considered within the definition of self-defense if the reaction is both proportional and takes place without appreciable delay. Nations involved in multinational operations, however, may seek to extend the definition of self-defense to include responses to hostile acts that would otherwise be seen as retaliation. The intent of such a redefinition might be to avoid multinational military or political interference in a nation's unilateral decision to retaliate for a hostile act against its forces.[6]

With some other nations, a response in self-defense can be made only as long as those committing the hostile act still are considered an immediate threat. The factors controlling the perception of the level of threat are subjective, and therefore open to some interpretation within ROE policy directives. In addition, forces not threatened directly may not respond in defense of friendly units under the definition of self-defense. To reach a

compromise between different ROE mind-sets, specific ROEs may have to be written-spelling out in detail the dividing line between "self-defense" and "reaction to a hostile act."

ROEs in Peace Support Operations

> The problem with peacekeeping is that we take military personnel who have trained their entire careers to kill people and destroy things and then throw them into an operation where they have to do the exact opposite.[7]

Peace support operations cover many nontraditional military Roles–including humanitarian relief, peace enforcement, and peace-keeping. All of these operational situations have varying potentials for the use of force, and therefore require varying ROEs. Just as various military incidents have influenced the U.S. mind-set toward self-defense, the British Army's experience in Northern Ireland and events involving Canadian forces in Somalia affected both these nations' attitudes toward the application of force as NATO later prepared to deploy to Bosnia and Herzegovina in Operation Joint Endeavor.[8]

Joint Endeavor was unique because it was the first attempt to conduct this type of operation on such a large scale and under a unified multinational command. An important aspect of command unification was the requirement for forces to work with a single set of NATO-approved ROEs. NATO planners did not start the ROE development effort from scratch. Operations Sharp Guard and Deny Flight had been going on for some time and U.N. ground forces had been operating for two years with their own ROEs.

One of the primary issues that planners tried to resolve was the ROE mismatch that existed between the naval, air, and land forces operating in and around the Former Republic of Yugoslavia. For maritime forces, it was not a significant transition. In the air and on land, however, things were not as simple. During 1994, the belligerence of the warring factions and the threat they posed to U.N. peacekeepers resulted in the use of NATO air power in both an air defense and interdiction role. The missions, forces, and ROEs available to NATO were adequate to accomplish this task. The U.N. ground forces, however, were not sufficiently equipped, and they did not have the rules to defend themselves against the retaliation expected as a result of NATO air strikes. This mismatch forced several NATO nations with participating ground troops to veto–repeatedly–the expansion of NATO's air effort.

Participation in a multinational operation does not release a nation's forces from their obligation to abide by national law. Can a commander be held legally responsible when a subordinate unit from another country uses force or weapons in a manner that is approved in the ROEs but is contrary to the commander's national law? The use of claymore explosive devices in perimeter defense is an example where national law and treaty interpretation vary widely.

During the buildup to Operation Joint Endeavor, there were offers of forces from all over the world. Many of these nations were unknown quantities as far as their use and understanding of ROE concepts. One of the conditions for becoming part of the operation was an unconditional acceptance of the NATO-approved ROEs. The ability of these nations to understand and implement those ROEs correctly was an important issue as the Joint Endeavor force deployed.

Fortunately, NATO rules of engagement have several elements that serve to make them useful at all levels. The ROE annex to a NATO operations order has three parts: the general policy section; an *aide memoire*; and a soldier's card. The *aide memoire* is a distillation of policy guidance and serialized rules and serves as a ready reference at the tactical headquarters or unit level. The soldier's card is an index card-sized list of dos and don'ts relating to the use of force by individual soldiers and small units. A caveat to the "one ROE" demand was that nations had to be given the latitude to disseminate guidance to their troops on how their national law applied to the approved ROEs. The emphasis here was to protect commanders and individual soldiers from running afoul of national law through the correct implementation of NATO-approved ROEs. Nations that did have caveats were obligated to notify their NATO chain of command so that upper-echelon commanders were aware of any operational limitations. Since many languages were represented in Operation Joint Endeavor forces, there were concerns about the quality of the ROE translations. In the end, time and staff limitations precluded inspections, and it was left to individual nations to translate the *aide memoire* and soldier's cards accurately.

The Operation Allied Force air campaign in Serbia and Kosovo raised some new ROE issues and confirmed some old ones. Allied Force moved very quickly from planning to execution, and several breakdowns in the ROE implementation process occurred. By early 1999, "Joint Combined ROE" was mature enough to be used as a basis for operations plan ROE development. It was not, however, a NATO-approved document, and significant operations plan-approval-process delays were caused by negotiations over language in generic ROE measures. ROE planning tended to default to the legal staffs and some implementation misunderstandings could have been avoided had there been greater subordinate headquarters involvement in the planning process. Once Allied Force was under way, the lack of approved standing ROEs became a serious impediment when NATO military commanders attempted to react to the quickly changing battlefield environment. As had occurred previously in the Balkans, the potential for serious operational mismatches was present when supporting ground and naval forces deployed to the area in a peacetime ROE posture while the air component was actively engaged in combat operations.[9]

On 1 December 1999, six years of hard work and difficult negotiations culminated in the North Atlantic Council's approval of MC 362, "NATO Rules of Engagement." The council's sanction of the world's first and only joint, combined ROE system not only will aid NATO in multinational operations planning, but also will foster understanding of the essential role of ROE coordination in mission success.

Conclusions

Lessons learned from recent NATO ROE experience are important to anyone involved in planning or executing multinational joint military operations. These include:

- ROE development must be a collaboration between operators and lawyers. Standing or operation-specific ROEs first must meet the requirements of national and international law. At the same time, ROEs must reflect the needs of the commander and be written in common language.
- A permissive ROE mind-set is easier to modify to reflect national political and legal concerns than a more restrictive form.
- The development of standing ROEs is essential to eliminating the need to reinvent the wheel for every multinational operation. A pre-existing, approved ROE concept will lessen the tendency of nations to want to negotiate changes based on the direction of the political wind that day.
- Unity of command must be protected through the use of a single ROE. Multinational ROEs also must be flexible enough to a allow for the legal limitations of individual nations.

- Joint force commanders must be on guard against mission and ROE mismatches between different force components.
- ROE concurrence must be a requirement for nations seeking admission into a multinational force.
- ROE training must be conducted down to the small-unit and individual levels, especially during peace support operations. This presupposes that an accurate version of the ROEs is available, which may not be the case, depending on the timeliness of the operations plan's political approval.

Many of these lessons are based on political and military quirks of the NATO operations plan development and approval process. These lessons are useful, however, as indications of the reality of future multinational operations planning. ROEs often are considered a planning process adjunct and are left to the judge advocates, but they must be considered integral parts of all military operations planning, training, and execution. Operators must understand the full intent of each ROE policy statement and measure. An operation's ROE profile continually must be compared to the commander's intent and all political guidance for complete continuity. In the highly charged political world of multinational operations, to take ROE development and application lightly will put lives at risk and jeopardize success.

Endnotes

1 Most interaction between Warsaw Pact and NATO naval forces occurred in international waters, where NATO treaty obligations did not necessarily apply. There was a need to provide policy guidance to NATO maritime commanders within the context of international maritime law. In addition, the potential for escalation of high-seas encounters required an effective command-and-control tool. In response, NATO developed maritime standing ROEs in the early 1970s. This first attempt at codifying ROEs proved extremely successful and served through the height of the Cold War without significant change.
2 NATO naval forces participating in enforcement of the U.N.-imposed trade embargo on states of the Former Republic of Yugoslavia.
3 The enforcement of the U.N.-mandated no-fly zone over Bosnia and Herzegovina.
4 The NATO plan for the deployment of forces to implement the Dayton Peace Agreement in Bosnia and Herzegovina.
5 The bombing of the Marine barracks in Beirut, the Iraqi missile attack on the USS Stark (FFG-31), and the Iranian Airbus shootdown by the USS Vincennes (CG-49) were primarily operational failures that spawned intense debate on U.S. ROEs and self-defense policy.
6 This situation might develop if, for example, a single nation operating within a multi-national force decided to mount a retaliatory strike under the guise of self-defense against surface-to-air defenses that had fired at its aircraft the day before.
7 Col. Robert Neller, USMC, Peacekeeping Section, Supreme Headquarters, Allied Powers Europe, conversation with author, summer 1995.
8 At the time of the author's involvement in drafting the ROE Annex to Operation Joint Endeavor, a British soldier was on trial for murder in Britain for shooting at a car that had run a roadblock in Northern Ireland, resulting in the death of a passenger, and the Canadian Parachute Brigade had just been disbanded because of the alleged participation of some of its soldiers in the torture and beatings of Somali prisoners during humanitarian relief operations.
9 MC362, "NATO Rules of Engagement," Supreme Allied Commander, Atlantic, staff brief, 6 June 1999.

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Air Operations Must Be *Joint*

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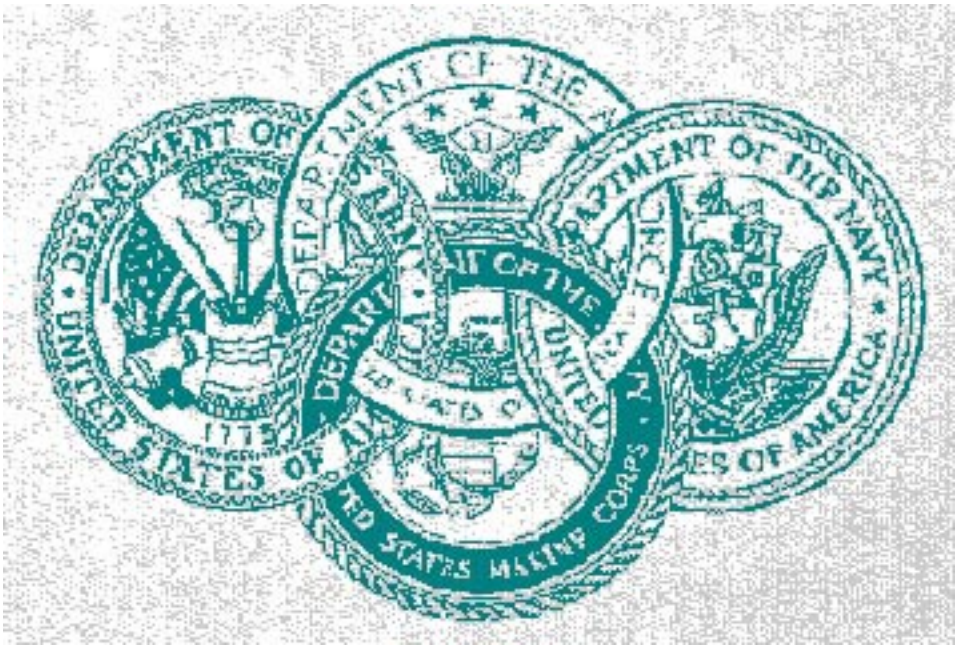

The advent of airpower in the twentieth century revolutionized warfare by adding a third dimension to the "traditional" battlefields on land and sea. Further, its capabilities have evolved significantly. Initially, for example, airpower functioned as a subordinate element to the Army, and in World War I its missions included little more than aerial artillery observation and communication. Today's independent Air Force and the smaller service-unique air components, however, operate in a wide variety of combat and support roles in the joint environment. The debate over airpower's role among the various armed services has been a recurring issue since the airplane demonstrated its utility as a weapon of war during the First World War. Interservice discussions have been widespread and intense, caused by the services' parochial self-interests and differing viewpoints on how to wage joint warfare. Specifically, the sea and ground services want airpower to operate under their control in direct support of the tactical and operational levels of their respective campaigns, while the Air Force wants to focus its assets on an independent air campaign against strategic targets in support of the theater campaign.[1]

During the past seven decades, a variety of joint organizations tried to meet wartime requirements by establishing differing degrees of control over the services' air assets. Their efforts met with varying levels of success. After noting problems in several joint military operations in the early 1980s, Congress passed the Goldwater-Nichols Defense Reorganization Act of 1986 to reform and improve the joint warfighting capability of the services. This law gave the regional commanders in chief (CINC) primary responsibility for war fighting in their respective theaters, while subordinate land, sea, and air component commanders would control the four services' components assigned to the theater. In the late 1980s, the European CINC established the joint force air component commander (JFACC) as a coordinator to organize the theater's air assets and accomplish the CINC's mission.[2] The Joint Chiefs of Staff (JCS) first approved this concept in Joint Publication (Pub) 26, and the other warfighting CINCs later accepted it as a doctrinal mechanism to command and control the theater's airpower assets.[3] The current concept gives the JFACC operational control over all air assets assigned or attached to the theater, along with responsibility for planning and executing air operations in support of the CINC's mission.[4] Operations Desert Shield and Desert Storm provided the first operational, wartime exercise

of the new command and control (C2) system, which proved to be the most effective system to date in commanding and controlling joint airpower.[5] As expected with a new operating system, several questions arose, dealing with joint interoperability and service-specific concerns about the system's implementation. The lessons learned from this experience can be used to improve the current JFACC system and enhance its performance in future conflicts involving joint power projection.

The Current JFACC System

The JFACC concept codifies the Air Force's long-held premise that (1) airpower must operate under a single air commander who exercises centralized control of air assets and (2) the execution of air missions must be decentralized. Only then can the Air Force optimize airpower's unique capabilities. Airpower assets—primarily high-performance, fixed-wing attack aircraft from the Air Force, Navy, and Marine Corps—are combined under the JFACC's operational control for the planning and execution of air operations in support of the CINC's intent for the overall theater campaign. Centralized control is exercised through the processes of apportionment, allocation, and distribution.

Apportionment consists of determining and assigning the total expected air effort (in terms of percentages and/or priorities) that should be devoted to each airpower mission (e.g., counterair [CA], air interdiction [AI], close air support [CAS], strategic attack, etc.). The CINC makes the apportionment decision, based on the JFACC's recommendation on use of available theater air assets. For example, the CINC may determine that CA is his first priority and should include 50 percent of the available air assets, based on his intent for next-day operations. His second and third priorities may be AI and CAS, including 30 percent and 20 percent of the air assets, respectively. These apportionment percentages may vary throughout the operation, depending on the enemy's air, ground, and sea capabilities and phasing of the overall theater campaign plan.

After the CINC makes the apportionment decision, the JFACC and staff conduct the allocation process, which consists of translating the apportionment percentages into numbers of sorties, broken out by available aircraft type, unit, and mission. During this phase, they also perform mission planning for the available aircraft that support each airpower mission. This process results in the air tasking order (ATO), which provides specific mission orders for each aircraft's next-day operations. After it is approved, the ATO is sent to all services for decentralized execution of the air missions.

The distribution process takes place after the allocation process is completed. That is, the JFACC "gives" CAS sorties to the land component commander (LCC) who then distributes available sorties to subordinate Army and Marine Corps elements for use in their mission planning.[6] Apportionment, allocation, and distribution are designed to be logical and simple, but problems stemming from differing service doctrines and equipment in Desert Storm limited the JFACC's effectiveness in implementing these three processes.

The JFACC System in Desert Storm

Overall, the JFACC system succeeded in meeting mission requirements during Desert Storm. The air campaign was a major factor in forcing Iraq to withdraw from Kuwait and in keeping coalition losses to a minimum. Because Desert Storm marked the first use of the JFACC concept, however, one could expect some problems to occur. One of the most publicized criticisms concerning joint interoperability involved the JFACC's use of an Air Force-designed ATO as a mission-planning document.[7] Faced with planning missions for hundreds of

aircraft from dozens of coalition partners, the Air Force produced a daily ATO consisting of several hundred pages. A series of courier flights then delivered the ATO from JFACC headquarters in Riyadh, Saudi Arabia, to Navy carriers at sea because communications system incompatibility between the Air Force and Navy prevented electronic transmission of the document.

JFACC planning and execution processes encountered even harsher criticisms along service-specific lines. Indeed, some JFACC planners noted that it was sometimes easier to work with coalition members from other nations than with members of the other US services.[8] For instance, the Navy and Marine Corps complained about the JFACC system's operational philosophy and targeting. Traditionally, the Navy's carrier air groups have operated autonomously, accustomed to decentralized control, planning, and execution of their operational missions.[9] Similarly, Marine Corps doctrine notes that the Marine Air/Ground Task Force (MAGTF) commander retains operational control over all organic assets, including high-performance, fixed-wing aircraft.[10] But the JFACC system's rigidly centralized control over target selection, planning, and decentralized execution directly opposed both the informal and formal systems of the Navy and Marine Corps. The resultant turmoil had to be overcome through improvisation.[11] Another criticism charged that the Air Force-dominated JFACC staff allocated Air Force assets to attack more lucrative (and highly visible) targets but relegated Navy and Marine Corps aircraft to less valuable targets.[12] However, postconflict studies have shown that many Navy and Marine Corps aircraft simply lacked adequate target identification systems as well as the capability to deliver precision guided munitions (PGM) and thus were not suitable for certain targets.[13]

The major criticism of the Army and Marine Corps concerned the lack of air effort in support of ground operations in the overall theater campaign plan. Conversely, the major complaint of the Air Force senior leadership was that preparation for ground operations diverted assets from the strategic effort.[14] During the air campaign's initial phases, the JFACC concentrated assets on strategic atttack to wrest air superiority from Iraq and to eliminate its command, control, communications, and intelligence (C3I) facilities and nuclear, biological, and chemical (NBC) capability, in accordance with the CINC's apportionment decision. As the air campaign progressed, the CINC intended to shift the focus to interdiction sorties against Iraqi ground forces for the upcoming ground war to liberate Kuwait. However, senior JFACC staff planners diverted interdiction strikes nominated by the Army to strategic targets, an action that countered the CINC's intent for the overall campaign.[15] Air Force commanders and planners felt that diverting aircraft from the strategic effort prevented the air campaign from decisively defeating Iraq without the need for a ground war.[16] But Army and Marine LCCs were not convinced that airpower alone could force Iraq to withdraw from Kuwait. They felt that although the ground campaign would still be required, the JFACC did not support the "shaping" of the ground battlefield until directly pressed by the CINC.[17] For example, airpower struck only one-third of over 3,067 Army-nominated ground targets in preparation for ground operations.[18] At the beginning of the air campaign, the MAGTF commander withheld half of his organic, fixed-wing assets from JFACC control, saving them for his priority targets.[19] Later in the air campaign when the JFACC had not allocated "sufficient assets," the MAGTF commander withdrew all of his fixed-wing aircraft from JFACC control to shape the battlefield in accordance with his intent.[20] Although this action solved the MAGTF's near-term problem, it defeated the purpose of using a JFACC to optimize the use of air assets. Neither does it offer long-term, workable solutions to problems with air-ground operations. We need to find better solutions, and this process begins with understanding the major doctrinal differences among land, air, and sea forces.

Doctrinal Differences

Gen Curtis LeMay noted that "at the very heart of warfare lies doctrine. It represents the central beliefs for waging war in order to achieve victory."[21] But the four services differ in their respective war-fighting doctrines and in their perception of warfare and airpower's role in it. These differences became especially evident during Desert Storm. For example, the JFACC staff was joint in name only, since its nucleus consisted of the Ninth Air Force staff, augmented by other Air Force elements and liaison officers from the other services and nations that supplied airpower assets.[22] Unsurprisingly, Air Force doctrine dominated the JFACC planning process,[23] focusing on CA operations and strategic attacks, regardless of the other services' concerns.[24] Airpower advocates from the time of Giulio Douhet through the present day believe that the heart of the enemy's ability to wage war (its strategic center of gravity) lies in his industrial base.[25] After achieving air superiority, the Air Force then launches a strategic attack aimed at destroying the enemy's industrial infrastructure and achieving decisive results without intervention by land and sea services. In essence, Air Force doctrine makes support of ground (or naval) forces a low-priority mission for air combat units.[26] Thus, the JFACC staff's recommendations for aircraft apportionment to the CINC followed the dictates of Air Force doctrine, which preferred to handle operational-level ground targets with AI rather than CAS.[27]

On the other side of the doctrinal coin, the Army, Marine Corps, and Navy see themselves as the final arbiters of armed conflict in their respective environments. To them, airpower plays only a supporting role, merely augmenting available firepower and limiting hostile fire on friendly forces. Unlike the Air Force, the advocates of land and sea power consider the enemy's strategic center of gravity to be his army and navy, respectively; thus, available airland and sea resources should concentrate on the opposing center of gravity to fulfill the campaign's objectives.[28] Naval and military strategists such as Carl von Clausewitz, Antoine de Jomini, Alfred Thayer Mahan, and Julian Stafford Corbett all agree that occupation of the enemy's territory offers the decisive solution to combat. This viewpoint is best summarized in the Naval War College's classic text of 1942, Sound Military Decision: "The final outcome [of war] is dependent . . . on ability to isolate, occupy, or otherwise control the territory of the enemy" (emphasis in original).[29] In Desert Storm, the UN and US objective of liberating Kuwait did require a land campaign entailing ejection of Iraqi forces and occupation of the land.[30] Such doctrinal differences over the role of airpower in support of the theater campaign plan made disputes among the services almost inevitable.

Joint Interoperability and the Need for Joint Doctrine

Many joint interoperability problems with hardware are undergoing research and development for possible solutions. The Navy and Marine Corps still need to enhance their air capability to influence the land campaign in accordance with their recently published white paper . . . From the Sea,[31] which shifts the Navy's traditional focus from a blue- water, fleet-on-fleet confrontation to support of joint-force projection operations in the littoral regions of the globe. For example, the Navy and Marine Corps need more aircraft with the capability to deliver PGMs and with advanced target identification systems compatible with current Air Force systems. Each service should procure equipment—especially communications and weapons systems—that is compatible with that used by the other services. Several joint communications, electronics, and systems boards have already been established to ensure the compatibility of new common-use hardware, software, and other equipment. Increased peacetime training of Air Force, Navy, and Marine aviators in JFACC procedures will also improve operational effectiveness of the new system. Further, the ongoing joint training opportunities through the reorganized US Atlantic Command (USACOM) will improve joint interoperability by establishing com-

mon procedures and knowledge in all four services.

Many service-specific complaints are not yet solved and will remain unsolved until the four Services agree on joint warfighting doctrine. Instances of the lack of adherence to established joint doctrine, such as the Marine Corps's withholding of air assets from JFACC control, limit the amount of interoperability that can be developed among the Services. Col John A. Warden III, the architect of Desert Storm's air campaign, notes that "many of our current problems over the uses of the various Armed Services stem from a lack of coherent doctrine on how they should be used individually and collectively in an operational campaign to secure some strategic end" (emphasis added).[32] This problem—which applies not only to joint air doctrine but also to joint warfighting doctrine in general—is both systemic and historical and will continue as long as the Services continue to operate under separate doctrines.

The Department of Defense (DOD) has several independently developed doctrines: the Army's AirLand Battle, the Navy and Marine Corps's . . . From the Sea, and the Air Force's global reach—global power, all dealing with the projection of joint expeditionary forces but otherwise exhibiting precious little that links them together for a common purpose. None of the current Service doctrines goes far enough in supporting joint operations because none fully integrates the capabilities of the others. As noted above, Air Force doctrine minimizes support to the joint airland campaign, while Navy operating philosophy and Marine Corps doctrine oppose the centralized control of joint air efforts through the JFACC. Instead of maintaining independent (sometimes opposing) doctrines, we need to write one joint doctrine to guide the projection of joint air, land, and sea power with one "central [belief] for waging war in order to achieve victory" (to reiterate General LeMay's point) and then develop Service doctrines that support joint power projection. This warfighting joint doctrine should be developed at the new Joint Warfighting Center at Fort Monroe in Hampton, Virginia, under the guidance of the JCS[33] and should be sufficiently broad and flexible to allow each service to produce a supporting doctrine that takes advantage of its unique capabilities and characteristics. Conversely, no Service should develop a doctrine that opposes the effective development and execution of joint doctrine and operations in future endeavors.

Refinements to the JFACC System

The current JFACC system is an effective mechanism for controlling joint airpower but could stand some refinements. For instance, future JFACC staffs should be truly joint, including equal representation from the four Services. Gen William W. Momyer noted that "when a headquarters that is supposed to control multiservice forces is not structured with a balanced staff, interservice problems tend to become magnified since there is inadequate consideration of at least one Service's view at the outset."[34] The JFACC staff—particularly the operations and planning cells—should include enough Army, Navy, and Marine Corps representatives to ensure that the concerns of each service are addressed in the apportionment and allocation processes. The staff planning processes should use established joint doctrine instead of Service-specific doctrine or theories that limit the effective execution of joint air operations in-theater. In other words, JFACC staff members should not subvert the staff planning process or the CINC's allocation decision, as was the case in the Gulf War when several Air Force members of the JFACC staff used "creative diversions" to divert tactical strikes from Kuwait to strategic targets in Iraq in an attempt to validate the prewar claim that airpower can defeat enemy land forces without using friendly land or sea forces.[35] On the other hand, the demands of ground commanders should not dilute the CA effort to the point of failure, unless the tactical situation on the ground dictates otherwise. The responsibility for maintaining this delicate balance between competing demands for airpower falls squarely on

the shoulders of the JFACC and his or her staff. Once the CINC makes the apportionment decision, the allocation of aircraft must fulfill the CINC's original intent, and no aircraft should be diverted to other targets unless unanticipated changes in the theater situation so dictate. If diversions occur, then one should make appropriate modifications to the ATO to fulfill the CINC's apportionment decision and his or her intent for subsequent phases of the theater campaign.

Army, Marine Corps, and Navy leadership must understand the strategic, operational, and tactical roles of airpower in the theater air campaign. Because airpower is a scarce resource on the battlefield, it may not be available for every potential target. Wartime experience has shown that AI makes more effective use of limited air assets than does CAS and that higher-priority missions in accordance with the CINC's intent may limit the number of sorties providing direct mission support to ground and sea forces.[36] Thus, local commanders should be prepared to adjust their operational plans accordingly if planned and requested CAS sorties are not available. On the other hand, Air Force, Navy, and Marine air components need to be aware of their roles in supporting ground and sea forces on the modern battlefield. Because airpower is a tremendous force multiplier for land and sea forces, commanders should frequently use it to increase US military effectiveness and to reduce friendly casualties.

The services must develop improved joint education so their members can understand the capabilities and limitations of airpower in its strategic, operational, and tactical roles in the theater campaign. This education should cover the role of the JFACC in supporting the CINC's theater campaign plan and the way airpower can best support each phase of the campaign in the air, on land, and at sea. Planners and operators in the joint environment must learn when and how to adapt service-specific doctrine and concerns to meet the requirements of joint operations in power projection and not allow parochial interests to override the needs of the joint operation.

The first priority of joint air operations in support of the theater campaign must be CA operations to achieve air superiority because wartime experience has shown that air, land, and sea forces cannot effectively perform their missions while under air attack.[37] Joint US airpower has done a superb job of ensuring air superiority to support US ground and sea forces—witness the fact that these forces have not faced a hostile aerial attack since 30 June 1953, during the Korean War.[38] After air assets have established air superiority, the CINC can then apportion those assets among all sea, air, and land forces in-theater to meet other service and mission requirements and to ensure accomplishment of the CINC's mission. With regard to other priorities, Adm James Winnefeld notes that "the first priority [for airpower] should be the needs of the supported commander if a decisive engagement is under way. . . . The second priority should be the requirements of the air component commander. This order of priorities should be reversed if the supported commander is not decisively engaged or about to engage" (emphasis in original).[39] When ground and sea forces are not in use or not in-theater, the CA and strategic campaigns should have priority on available assets because, as some sources argue, the JFACC is the supported commander.[40] However, after ground and sea forces are committed or intended for use in the theater campaign plan, sufficient air assets must be apportioned and allocated to meet the supported commander's AI and CAS requirements, in accordance with the CINC's intent. If time permits, subordinate air, land, and sea commanders should be informed of the apportionment and allocation decisions (along with any subsequent changes) in order to increase their understanding of the CINC's intent and campaign plans and to allow them to adjust their supporting plans accordingly.

Conclusions

The JFACC system is the most effective joint organization that DOD has devised to command and control joint air operations. Nevertheless, we must refine the system to make it more responsive to the requirements of the CINC and the subordinate commanders of all four Services. Air operations must be joint—not merely an amalgamation of individual Service efforts operating in accordance with individual Service concerns and agendas. Joint operations are the primary means by which the US will project power abroad in the new world order. Indeed, Gen Henry C. Stackpole III predicted that the US will probably never witness a military operation that is neither joint nor combined.[41] In the past, each Service followed an independent doctrine based on its own interests. Although such doctrine allowed for some degree of overlap when the Services worked together in joint operations, in the future we may not have the luxury of redundant capabilities and must make more effective use of available forces. Because joint air operations will prove invaluable to power projection in future conflicts, we must develop the joint doctrine, equipment, and procedures to support the JFACC system. Only then can we use it more effectively and efficiently to project force against hostile land-, air-, or sea-based threats.

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EDITOR'S NOTE: This paper was originally published in the AIRPOWER JOURNAL, Spring 1995, and has been reprinted with permission of the Editor, Airpower Journal. Also, included below is a list of some of the more relevant lessons learned from the current JCLL database relating to the JFACC system.

Number	*Operation/Exercise*	*Title*
72991-76812	JTFEX 99-1	Physical Separation of the AADC and JFACC
90338-43103	UNIFIED ENDEAVOR 97-1	Air Tasking Order
71754-65520	ROVING SANDS 97	Plan, Establish, Employ a Joint Integrated Air Defense System
12748-84979	UNIFIED ENDEAVOR 96-2	Joint Targeting and Control Board
72458-55244	NORTHERN EDGE 96	Joint Doctrine for MAGTF-JFACC Integration
21353-05700	UNIFIED ENDEAVOR 96-1	Relationship Between JFACC and JTCB
22133-34867	TANDEM THRUST 95	JFACC Afloat
11240-81500	TANDEM THRUST 95	Fire Support Coordinator – JFACC
10831-95043	UPHOLD DEMOCRACY	Joint Force Air Component Commander (JFACC)
42368-66461	TEMPO BRAVE 94-1	Execute Power Projection and Counter Hostile Projection Operations
51067-46421	TEMPO BRAVE 94-1	Reconnaissance Planning
72829-93104	TANDEM THRUST 93	JMET PC-C517 (re. JFACC Afloat and Transition Ashore)
72847-86141	TANDEM THRUST 93	JMET PC-D (re. JFACC Afloat and Ashore Coordination)

Risk Management (RM) for Joint-Level Exercises

by CW4 Alfred L. Rice, Third U.S. Army Safety Officer

Exercise BRIGHT STAR is the largest overseas deployment exercise in which the U.S. Army participates, and Exercise BRIGHT STAR 99/00 in Egypt can be considered a success as iterated in this article. The exercise was primarily focused in Mubarak Military City (MMC), which is located approximately 130 miles west of Cairo, from 20 September through 20 November. The implementation of RM during an exercise the magnitude of Exercise BRIGHT STAR can be considered a challenge for any safety officer. There are a number of lessons from Exercise BRIGHT STAR which can provide insights for future deployments.

PRE-DEPLOYMENT PHASE

Techniques and Procedures. The most critical element of RM is to imbed RM principles in the initial stages of the deployment. A review of the Joint Universal Lessons Learned System (JULLS) provides a good basis for identifying risks from previous Exercise BRIGHT STAR deployments. A good review of accident statistics and JULLS from deployments, such as Operations DESERT STORM, DESERT THUNDER, DESERT FOX, and INTRINSIC ACTION, also provided information on potential accident areas in similar environments. An RM plan was developed from this statistical information. Many preventive measures were written into the operations plan. A number of pre-deployment safety initiatives were undertaken, among them:

- **Commander's Safety Philosophy**. The Commander's Safety Philosophy was drafted and written to outline the Coalition Joint Forces Land Component Command (CJFLCC) Commanding General's safety principles. The philosophy directed that no unnecessary risk would be taken in the training environment and that all units would implement RM as a tool for their operations.

- **Safety Briefings**. A PowerPoint® safety briefing was developed and disseminated on web sites and e-mailed to deploying units.

- **Safety Officers**. Deploying units of significant size deployed with full-time safety officers. Coordination was effected to provide Reserve Component units, such as the 377th Theater Support Group, with professional and fully qualified safety officers from FORSCOM's Army Safety Augmentee Detachment (ASAD) Program.

- **Safety Publications**. Safety publications, such as the Warfighter's Safety Guide, Leader's Safety Guide, and the Middle East Driver's Safety Pamphlet, and an assortment of safety posters were published beforehand.

- **Operations Plan (OPLAN)**. The safety annex to the OPLAN was drafted and published. Central to the OPLAN was the requirement to conduct risk assessments, as well as the applicability for the mission and location of the diverse number of organizations that fell under the CJFLCC command structure.

- **Site Survey**. A safety site survey of the MMC was not only conducted to assess the future challenges in the area of safety, but also to establish a common-sense approach to the parking plan for the 10 rotary-wing assets. Dust can potentially cause tremendous damage to turbine engines as well as pose

a higher risk to aircraft browning out during landing; therefore, the decision was made to park helicopters on existing vehicle parking areas. MEDEVAC pads were established in close proximity to the Field Hospital. To provide for unit integrity, three adjacent parking areas were used as a basing area for the VIP and command and control aircraft. An existing VIP pad was used after carefully considering its central location and proximity to other key command areas.

DEPLOYMENT PHASE

LESSONS. *Risk management was briefed to the command daily to keep safety in the forefront during the entire exercise*. The key focus of tactical safety during the deployment phase and throughout the duration of the exercise was areas that created "catastrophic" and "critical" levels of accident severity: ammunition safety, vehicle safety, POL safety, and aviation safety. Once key risk mitigation stems were implemented in these areas, the focus could shift to those areas with higher accident probability factors.

The safety officer worked as an integral part of the commander's special staff and worked directly for the commander through the chief of staff. During the deployment phase, daily accident information was retrieved from significant sources. The Field Hospital provided a record of daily injuries. The military police provided the primary source for information on vehicle accidents. Range control provided the information on significant events at the range. The CJFLCC C-3 aviation provided the source for aviation-related incidents. Significant incidents were briefed daily focusing on what was being done to prevent a similar occurrence or actions that needed to take place for future accident prevention. The daily review of incidents provided an invaluable tool to determine where to place risk mitigation efforts as the CJFLCC mission shifted from establishing the base camp to conducting coalition warfighter training.

The first significant product produced by the safety office on the first day of deployment was the Emergency Contact Sheet which provided important safety-related telephone numbers and frequencies. As the base-camp communications architecture evolved, the safety office had to keep abreast of these changes and inevitably published six editions of this document. The Emergency Contact Sheet included the phone numbers of the Field Hospital, MPs, Egyptian fire department, MEDEVAC, and range control. This document eventually became an annex to the MMC and Base Camp Pre-Accident Plan.

Range Safety. The range SOP was reviewed and daily monitoring was conducted. The CJFLCC safety office collocated itself with range control for close observation of range activities. Attendance at the daily range coordination meeting became a critical platform to brief coalition forces that were not keenly familiar with risk management, and to educate all players on the range of the critical importance of accident prevention. Safety briefings with graphic pictures were given to highlight the dangers of unexploded ordnance

(UXO) and careless or accidental discharge of weapons systems. The U.S. Marine Corps element drafted a range SOP and executed a superb range operation. They provided liaison officers (LOs) to most coalition partners. The challenge was ensuring 15 separate coalition forces used a single common procedure for range operation. The LOs provided an element of control for a common range operation. Safety redundancies were built into the range operation. For example, although restricted range airspace was established, there were some aircraft that flew into the airspace. The presence of air sentries acted to shut down the range when airspace intrusions occurred.

Vehicle Safety. As with most deployments, vehicle safety proves to be the greatest danger to the warfighter. The philosophy of "a parked vehicle has never killed anybody" was stressed to the command. Stringent vehicle dispatch policies were implemented. Additionally, the CJFLCC adhered to the U.S. Embassy policy to not conduct any vehicle nighttime operation outside of the operations area to avoid problems inherent with in-country vehicle hazards. Many Egyptian roads do not have lights, road markings are often non-existent, and many civilian vehicles operate without headlights. The Military Police Battalion became a critical element in vehicle safety. The MPs were very proactive in their efforts, which included, but were not limited to: establishing, posting, and enforcing speed limits; creating speed bumps to slow down traffic; establishing traffic control points for convoys; and providing convoy escorts to check convoy speeds.

Aviation Safety. The CJFLCC safety office was also collocated with the CJFLCC C-3 aviation section. The Aviation Safety Council was established and met weekly as the CJFLCC developed into a more robust operation. Aviation safety issues were addressed and resolved in this forum. The most significant issue from this forum that remained unresolved was the absence of a fully integrated primary crash alarm system. An Internet link with the U.S. Army Aviation Safety Officer List (ASOLIST) provided a current source of safety of flight and safety of use messages. There were a number of messages that were provided to coalition and other Service component elements that impacted their airframes, information that they were unable to receive due to being deployed. Critical to safe aviation operation was the creation of the Exercise BRIGHT STAR Aircrew Information Manual that served as a guide to aircrews in the effort to deconflict airspace and ensured a common operating procedure among all the coalition aircrews.

Ammunition/Weapons Safety. Ammunition safety and weapons safety is a challenge for any deployment, and this challenge is increased when coalition forces are involved. The primary control for weapons safety was implementing a policy that prohibited the carrying of small arms ammunition to only those personnel involved in the force protection security mission. Small arms ammunition was only issued at the ranges in conjunction with range activities.

Electrical Safety. Approximately 40,000 meters of electrical wire were laid down by Prime Power employing the standard outlined in EM 385-1-1, U.S. Army Corps of Engineers Safety and Health Requirements Manual. Electric wires laid by the Prime Power crew were either elevated above the standard height of cargo

vehicles and whip antennas or were buried underground. A major concern was electrical wiring to civilian bazaars and the contract tents erected by local nationals that may not have met electrical codes. Coordination and a great deal of effort were expended in preventing these areas from becoming an electrical hazard.

POL Safety. The 110th Quartermaster Company established the bulk fuel point. The layout of the fuel points were by the book, and in areas, such as tagging, the different valves and emplacement of diapers on hose couplers, the unit went above and beyond required standards.

Base Camp Safety. Elements of safety were made part of the newcomer's briefing to highlight those safety issues that could not be mitigated. There were many existing hazards at MMC that could never be relaxed such as electrical hazards and trip hazards. Safety awareness was further enhanced through the use of safety mini-posters that were disseminated to the subordinate commands. Twenty pages of "safety one-liners" were provided to the FM radio station "BRIGHT STAR Radio" and were effectively used to promote safety awareness. The big concern in base camp safety was the area of tent fires: the potential always exists for a fire to sweep through a tent city. Safety awareness remained the key, and the no smoking policy in tent areas was emphasized and enforced during all phases of Exercise BRIGHT STAR.

Warfighter Safety. Hydration was a primary focus of warfighter safety; there were a small number of incidences of dehydration. Health hazards were present, and the preventive medicine teams were active in treating areas requiring mitigation of air-borne pathogen hazards.

POST DEPLOYMENT PHASE

LESSONS. *Capturing lessons is essential to ensuring safe future exercises*. JULLS were submitted capturing lessons for safe execution of the next Exercise BRIGHT STAR. Exercise BRIGHT STAR 99/00 statistics show that the CJFLCC dispensed almost half a million gallons of fuel, drove over 3,000 vehicles, flew around 50 assorted rotary-wing aircraft, laid down approximately 50 miles of electric wire, and expended over 300 short tons of ammunition. For a period of 4 to 8 weeks, over 17,000 coalition land force warfighters conducted high-operational tempo coalition training safely without any major incidents or fatalities. Credit goes to the leadership and warfighters that embodied the principles of risk management and protected the force while conducting the mission.

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